**Course:** All Science

**SCOS:** Goal 1

**Lang. Obj:** Practice measuring, estimating, and rounding with

accuracy and precision

**Strategy:** 23-Scientific Inquiry

**For the teacher:** Introduce concept of significant figures. Allow students to complete the following activity. Use questions as a starting point for discussion about the importance of accuracy and precision in scientific measurement.

**For the student:**

**QUICK LAB: Accuracy and Precision**

**PURPOSE**

To measure the dimensions of an object as accurately and precisely as possible and to apply rules for rounding answers calculated from the measurements.

**MATERIALS**

* 3 inch x 5 inch index card
* metric ruler

**PROCEDURE**

1. Use a metric ruler to measure in centimeters the length and width of an index card as accurately and precisely as you can. The hundredths place in your measurement should be estimated.
2. Calculate the perimeter [2 (length + width)] and the area (length x width) of the index card. Write both your unrounded answers and your correctly rounded answers on your paper.

**ANALYSES AND CONCLUSIONS**

1. How many significant figures are in your measurements of length and of width?
2. How do your measurements compare with those of your classmates?
3. How many significant figures are in your calculated value for the area?
4. In your calculated value for the perimeter? Do your rounded answers have as many significant figures as your classmates’ measurements?
5. Assume that the correct (accurate) length and width of the card are 12.70 cm and 7.62 cm, respectively. Calculate the percent error for each of your two measurements.